

Appl. No. : 10/530,071
I.A. Filed : October 4, 2003

AMENDMENTS TO THE CLAIMS

Please amend Claims 1, 5, 9, 11 and 16-18 as follows:

1. (Currently Amended) A pumping apparatus with a peristaltic drive device for pumping a medium through a hose having at least one compressible portion, containing a one-piece shaft with integral cams arranged so as to be offset with respect to one another and with attached lamellae, the shaft being configured to guide movement of the lamellae in both forward and backward directions, wherein the cams are cam segments, the shaft is essentially without a core shaft and essentially without a continuous core region, and the ratio between the lamella height (c) and lamella stroke (h) is from about 4:1 to 1:1.

2. (Previously Presented) The pumping apparatus according to Claim 1, wherein the shaft has a thin continuous core region having a diameter between 3 mm and almost zero.

3. (Previously Presented) The pumping apparatus according to Claim 1, additionally comprising a counterpressure plate for applying the hose and for supporting the pressure exerted on the hose by the lamellae.

4. (Previously Presented) The pumping apparatus according to Claim 3, wherein the counterpressure plate is sprung within a housing of the pumping apparatus by one or more springs.

5. (Currently Amended) A one piece shaft for a pumping apparatus with a peristaltic drive device, ~~the shaft being formed in one piece~~, wherein the shaft is designed without a core shaft and essentially without a continuous core region or, for an increase in stability, with a thin continuous core region having a diameter between 3 mm and almost zero, the shaft and having integral cam segments offset with respect to one another and contiguous to one another.

6. (Previously Presented) The shaft according to Claim 5, wherein an odd or even number of cam segments is provided.

7. (Previously Presented) The shaft according to Claim 5, wherein the cam segments are offset with respect to one another in such a way that only one cam segment is at a maximum distance from an imaginary center line of the shaft.

8. (Previously Presented) The shaft according to Claim 7, wherein a uniform offset (a) of the cam segments is provided.

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9. **(Currently Amended)** The shaft according to Claim 5, wherein the shaft comprises a plastic, in particular a carbon fibre plastic, a glass fibre reinforced polymer or another stable and dimensionally consistent material.

10. **(Cancelled).**

11. **(Currently Amended)** A method for pumping a medium through a hose having at least one compressible section, the method comprising:

providing a pumping apparatus with a peristaltic drive device containing a one-piece shaft being essentially without a core shaft and essentially without a continuous core region, having integral cams arranged so as to be offset with respect to one another and with attached lamellae, the shaft being configured to guide movement of the lamellae in both forward and backward directions, the cam segments being offset with respect to one another in such away that only one cam segment is at a maximum distance from an imaginary center line of the shaft;

progressively compressing the hose on one side by the lamellae without completely pinching the hose; and

generating a fluid flow in the hose.

12. **(Previously Presented)** The method according to claim 11, further comprising pinching the hose so that a volume can be enclosed in a leak-tight manner at the first and at the last cam segment, and that the remaining lamellae serve for the reduction in volume.

13. **(Previously Presented)** The method according to claim 12, wherein the first and the last lamella are switched as a valve and the remaining lamellae are set in such a way that, in any position, at least a narrow gap remains between the walls of the hose acted upon by the lamellae.

14. **(Previously Presented)** The method according to claim 11, further comprising pumping in two directions, a first direction and an opposite second direction.

15. **(Previously Presented)** The method according to claim 11, further comprising generating a sinusoidal pinching movement of the lamellae for generating the fluid flow through the hose when the cam segments have a uniform offset.

16. **(Currently Amended)** An infusion pump comprising:

a peristaltic drive device for pumping a medium through a hose having at least one compressible portion, containing a one-piece shaft with integral cams arranged so as

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to be offset with respect to one another and with attached lamellae, the shaft being configured to guide movement of the lamellae in both forward and backward directions, wherein the cams are cam segments, the shaft is essentially without a core shaft and essentially without a continuous core region, and the ratio between the lamella height (c) and lamella stroke (h) is from about 4:1 to 1:1.

17. **(Currently Amended)** A transfusion pump comprising:

a peristaltic drive device for pumping a medium through a hose having at least one compressible portion, containing a one-piece shaft with integral cams arranged so as to be offset with respect to one another and with attached lamellae, the shaft being configured to guide movement of the lamellae in both forward and backward directions, wherein the cams are cam segments, the shaft is essentially without a core shaft and essentially without a continuous core region, and the ratio between the lamella height (c) and lamella stroke (h) is from about 4:1 to 1:1.

18. **(Currently Amended)** A hose pump for medical use comprising:

a peristaltic drive device for pumping a medium through a hose having at least one compressible portion, containing a one-piece shaft with integral cams arranged so as to be offset with respect to one another and with attached lamellae, the shaft being configured to guide movement of the lamellae in both forward and backward directions, wherein the cams are cam segments, the shaft is essentially without a core shaft and essentially without a continuous core region, and the ratio between the lamella height (c) and lamella stroke (h) is from about 4:1 to 1:1.